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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,837	03/18/2004	Yoshinori Iguchi	Q91047	4257

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EXAMINER	
LAZORCIK, JASON L	

ART UNIT	PAPER NUMBER
1731	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/802,837	IGUCHI ET AL.	
	Examiner	Art Unit	
	Jason L. Lazorcik	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 17-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-12,15,17-18, AND 21* is/are rejected.

7)☐ Claim(s) *13,14,19 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 13, 14, 19, and 20 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Specifically, **Claims 13 and 19** set forth an intended use for the product of the claimed manufacturing method and **Claims 14 and 20** relate limitations drawn to an unrelated process of treating this product. None of the identified claims appear to provide further patentable limitations upon the claimed manufacturing method, and Applicant is therefore requested to cancel or amend the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

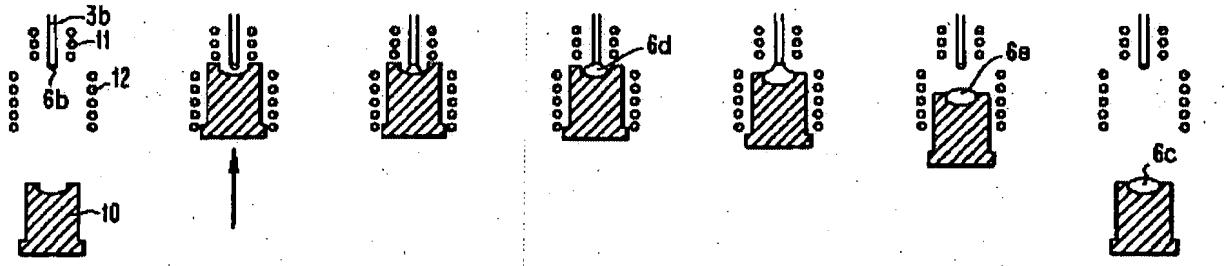
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-7, 11-12,15,17-18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Howard (US 1,853,002) in view of Ikeuchi (US 5,738,701) and Yoshikuni (US 2003/0000252 A1). Since the Yoshikuni pre-grant publication has a publication date more than 12 months prior to Applicants filing date, said publication is properly applied under 35 U.S.C. 103(a) as prior art even though both the reference and the instant application share a common assignment to Hoya Corporation.

With particular respect to **Claims 1, 2, 3, 5, 6, 7, and 15**, the Ikeuchi reference discloses a method for separating glass gobs which teaches nearly every element of the glass gob formation as set forth in Applicants claimed invention (see Figure 4 excerpt below). Specifically, the method comprises moving a support member to approach the front end of the nozzle (3b) (Figures 4a – 4b) and receiving a glass melt flow from a nozzle (3a or 3b) onto a support (10) (figure 4c). As set forth in the disclosure, the support is either intermittently or continuously lowered (fig 4d-4f) and when the glass retention ends, the support member is lowered at high speed to cut the glass (Fig 4g). During the lowering, a constriction is formed between the support and the nozzle (fig. 4e) which yields the breakpoint during the rapid lowering stage of the support (element 6d displayed in greater detail in figure 8).

FIG. 4a FIG. 4b FIG. 4c FIG. 4d FIG. 4e FIG. 4f FIG. 4g



With respect to **Claims 15 and 17**, it is asserted that from the time the gob is severed from the melt (fig 4g) through the reengagement of the support member to said melt (fig 4c) "contact between the support member and the lower end of the glass melt is "temporarily broken". Further with respect to **Claim 17**, Ikeuchi clearly indicates that the glass glob that has dripped is rendered spherical on the support member (column 4, lines 23-33). Now, the reference teaches that "The temperature of the crucible...is maintained at a predetermined temperature...(and) The temperature of the crucible and nozzle may be set in accordance with the characteristics of the glass and the size of the glass gob to be obtained insofar as the temperature is outside of the liquid phase temperature range (Column 3, lines 9-15).

Although not explicitly disclosed in the Ikeuchi reference, it is the Examiners position that Applicants limitation set forth in **Claim 15** wherein "the support member is cooled by circulation of a coolant through the support member" is a merely trivial extension over the teachings set forth by Ikeuchi. Specifically, Ikeuchi teaches that it is important to maintain both the crucible and nozzle at predetermined temperatures dependent upon the desired gob size and character of the glass melt material. Further, the glass manufacturing arts provide a wealth of exemplary systems [See Yoshikuni

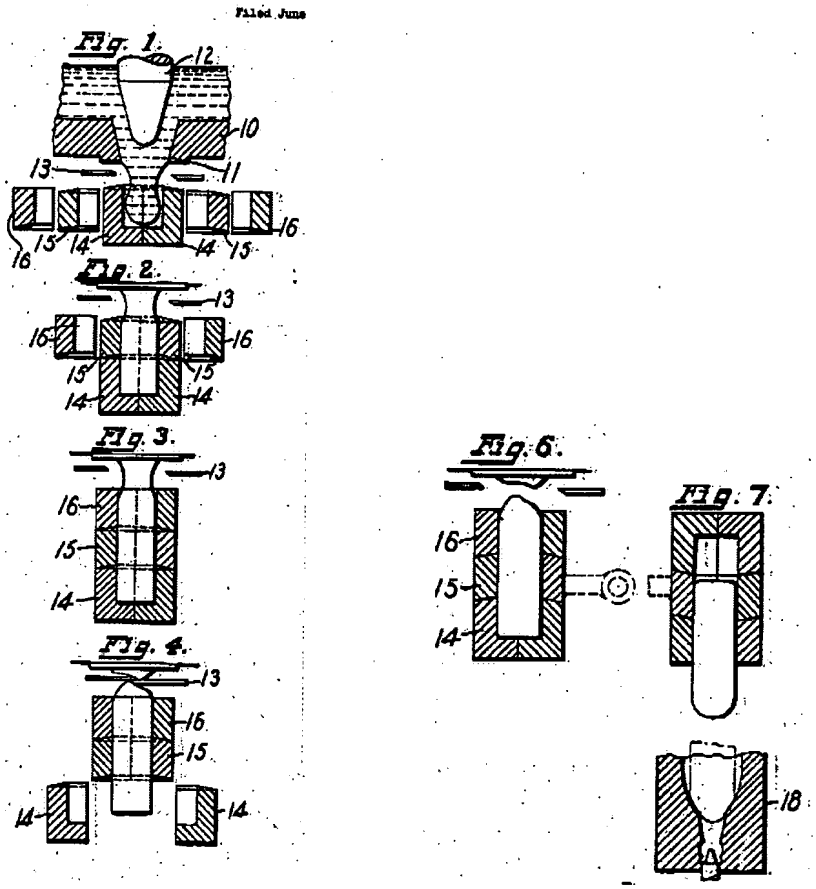
(US 2003/0000252), Fig. 3 and Column 7, lines 17-35)] that incorporate a circulated fluid or gaseous flow to regulate the machine temperature profile. Although Ikeuchi may not explicitly point to a method of thermal regulation which makes use of the claimed coolant circulation, it is the Examiners position that such a modification would have been a readily evident alternative to one of ordinary skill in the art at the time of the invention who was seeking to maintain the crucible "at a predetermined temperature" as taught in the instant reference.

Now with respect to each of the independent **Claims 1, 2, 3, 5, and 15**, Ikeuchi states that the instant method provides "defectless non-abrasive glass gobs" (Column 1, lines 45-47) and continues by stating that "The thus obtained glass gob, after cooling solidification may be press molded in a mold" (Column 5, lines 48-51). Since the glass gob is formed in "the support member" and subsequently shaped in "a mold" the Ikeuchi strongly implies a transferring step from said support member to said mold (e.g. glass forming member"). Ikeuchi however does not explicitly limit the details of this transfer step nor the timing of said transfer with respect to the forming step.

Howard (US 1,853,002) teaches the method of "suspended charge feeding" wherein a glass stream flowing continuously from a nozzle (11) is first discharged to a "supporting member" (14, 15, 16) followed by a concerted transfer step of the entire charge of glass material to a mold (18). As depicted in one preferred embodiment below in figures 6 to 7, the charge is inverted during the transfer process [**Claim 11**].

This "well known method" (Pg 1, lines 45-59) serves a materially equivalent purpose to the "support member" disclosed in the Ikeuchi process, namely to provide a glass gob free from the defects and distortions associated with direct feeding of the molten stream into a forming member.

The Howard process simply makes explicit the claimed process of transferring the glass gob from the support member (14, 15, 16) to a mold or "forming member" (18) for subsequent shaping into a glass article. The significant difference between the instant process and that of Ikeuchi is the use of sheers (13) to sever the charge from the flowing stream. This shearing operation is asserted by Howard to give rise to a deleterious "batting effect" or distortion which is circumvented by the Ikeuchi process. Therefore it would have been obvoius to one of ordinary skill in the art at the time of the invention to combine the glass gob forming process taught by Ikeuchi in the glass forming operation taught by Howard. This would have been an obvious modification for one of ordinary skill seeking to avoid the "batting effect" caused by shearing operation of Howard.



The prior art of record teaches the claimed glass gob formation and transfer steps as claimed, however provide no explicit limitation upon the relative timing of the transfer process with respect to the duration of the gob formation process. Although the prior art may not provide an explicit limitation upon the process timing, it is accepted as a common goal of engineering practice to optimize product throughput in order to maximize process economics.

Alternately, Yoshikuni (US 2003/0000252) teaches that "the cast glass is subject to acceleration" during transfer of a gob to a receiving or "forming" mold in a process similar to that outlined by the Applicant. The reference further teaches (Fig. 3 and

Column 7, lines 17-35) that it is known to support the glass gobs on a gas film emitted through ports in the supporting surface [**Claims 12, 15, 21**]. More importantly, the reference indicates that equipment acceleration exerts a force upon the glass, deforming the glass and that "when the amount of deformation is significant, the distortion remains in the glass after it returns it original shape." Finally, the reference indicates that "the greater the acceleration exerted on the glass...the greater the tendency of the glass to distort" (Column 1, Lines 55-67).

Therefore, it is clear that a balance must be established between 1) high throughput which maximizes units per unit time but which simultaneously subjects the glass gobs to higher distorting forces, and 2) low production speed which minimizes gob distortion forces but compromises product throughput.

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."; see In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation (See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)). In the instant case, process timing gives rise to a tradeoff between product production rate and the gob distorting forces which decrease product quality. Therefore in the Applicants process, "the time during which the glass forming member is stopped for transfer of the glass gob from the support member" is deemed a

result-effective variable of the gob molding process. In view of the foregoing and absent any compelling and substantially unexpected results to the contrary, it is the Examiners express position that one having no more than an ordinary level of skill in the art at the time of the invention would have been fully capable of empirically optimizing relative timing of the process steps.

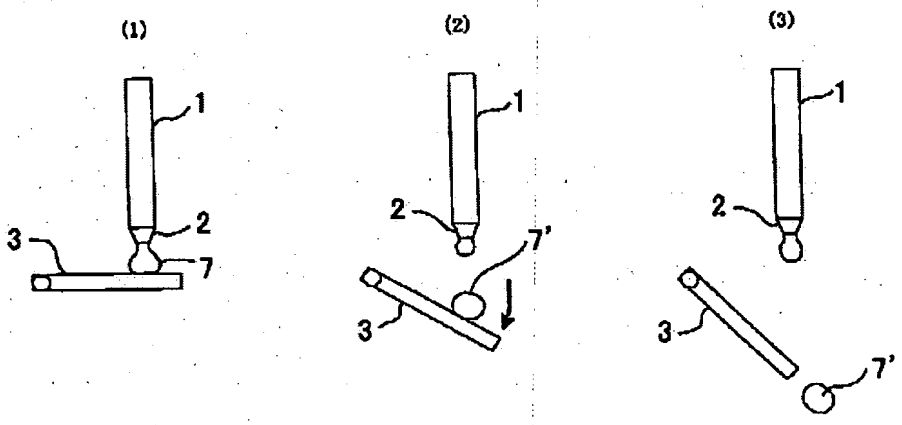
Claims 8, 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Howard (US 1,853,002), Ikeuchi (US 5,738,701), and Yoshikuni (US 2003/0000252 A1) as applied above and further in view of Murakami (US 2003/0131628 A1).

In summary, Ikeuchi teaches method of separating individual glass gobs from a glass melt which is continuously flowing from nozzle. Ikeuchi implicitly requires a transfer step of transferring the formed gob from the support member to a forming member, and the Howard reference renders this transfer explicit and further indicates that this process, generally termed "suspended charge feeding", is old and well known in the art. Neither of these references specifically limits the process timing, however it is the Examiners position absent, any compelling and unexpected results, that the claimed process timing would have been achieved through routine empirical optimization: Specifically with reference to the Yoshikuni disclosure, it would have been obvious to one of ordinary skill to seek a balance between maximizing gob production rate while minimizing the distorting forces imparted to the softened glass gobs which result in decreased product quality.

Now claims 8, 9, 10 all relate to various permutations of the general design an

operation of the support member. While the cited prior art is silent regarding these specific limitations, Murakami (US 2003/0131628 A1) teaches a variety of support members which read directly upon the claimed structure. With reference to the excerpt figure 2 below, the instant reference teaches a support member which is tilted to cause the glass gob to fall off.

FIG.2



Figures 3 and 4 teach support members which are rotated 360o to transfer a glass gob and wherein two consecutively produced glass gobs are received on two different surfaces of the support member.

FIG.3

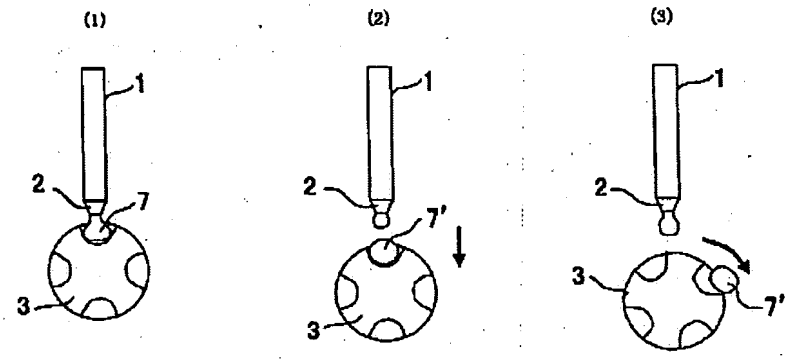
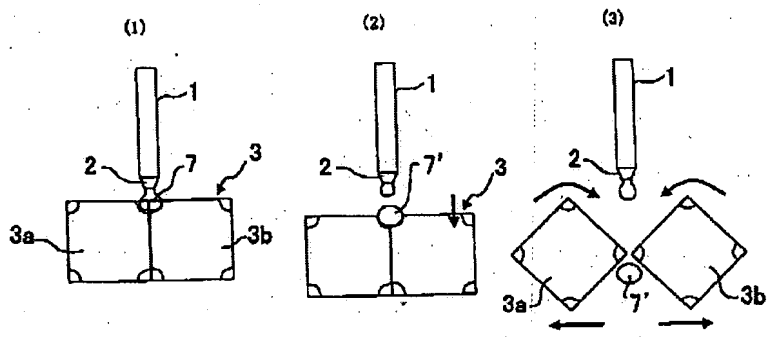


FIG.4



It would have been presented a merely obvious extension over the prior art teachings to substitute one or more of the functionally equivalent support members taught by the Murakami reference in place of the Ikeuchi support member.

Response to Arguments

Applicant's arguments filed May 7, 2007 have been fully considered but they are not persuasive.

Applicant argues in part that Ikeuchi does not teach the use of both a support member and a glass forming member and further does not teach a step of transferring the separated gob from the support member to the glass forming member. It is believed that the evidence presented in the claim rejections under 35 U.S.C. 130(a) above provide a sufficient showing either of the implicit disclosure of these specific elements within the Ikeuchi or their trivially obvious nature when viewed in light of the Howard reference.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLL

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